

# **Stormwater Management Financing Case Study**

## **Louisville- Jefferson County Kentucky**

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The Metropolitan Sewer District (MSD) of Louisville and Jefferson County is located on the Ohio River in northern Kentucky. MSD serves an area of approximately 220 square miles and provides stormwater services to nearly 90% of the county's population, or about 590,000 people. The sewer district serves the City of Louisville, many of the suburban cities, and most of unincorporated Jefferson County. The district does not serve the cities of Anchorage, Jeffersontown, St. Matthews, Shively, and Prospect. MSD has recently begun to operate in neighboring Oldham County, serving over one thousand residents there.

### **Stormwater Management History**

A major flood in 1937 prompted Louisville to begin planning for a large-scale flood control project. The Ohio River flood of 1937 covered 60% of the city of Louisville and 65 square miles of Jefferson County and damaged more than 30,000 homes in the area. Fearing another serious flood, Louisville and the Federal government began planning a floodwall and levee system. World War II forced the postponement of the construction of the flood control system and in 1945 the city experienced another serious flood. In the years following World War II, the city of Louisville worked to address the city's sewer system problems and flood control needs. MSD was created in 1946 to provide wastewater services to Louisville and much of Jefferson County. MSD inherited combined sanitary and storm sewer systems, separate sanitary and storm sewer systems, and various drainage and flood control facilities from the city's defunct Commissioners of Sewerage in Louisville that went out of business in 1944. In 1947, the city began to construct the long-awaited flood control system on the Ohio River. The first phase of the system was completed in 1957 and the city of Louisville hired a private firm to operate and maintain the pumping stations along the river. The Louisville flood protection system would eventually become one of the largest inland river flood protection systems in the world.

When MSD began, the district was collecting user fees to cover the costs of sanitary sewer construction, operation, and maintenance but was not collecting any money to pay for storm sewers. During the first ten years of MSD's operation, nearly 70% of the sanitary sewer user fees were being spent on storm sewer improvements rather than sanitary sewer improvements. In the mid-1950's MSD stopped building combined sanitary and storm sewers and storm sewer work by MSD in the city of Louisville stopped. MSD contracted with Jefferson County to provide drainage services to the unincorporated county at the county's expense but MSD did not take responsibility for drainage in any of the county's incorporated areas. Every new city in Jefferson County suddenly found itself responsible for its own sewage and drainage facilities upon incorporation and services in the county became increasingly fragmented as the suburban cities refused to form a metropolitan government with the city of Louisville and the courts struck down efforts to create drainage districts in Jefferson County. The area experienced flooding again in 1960 and 1964 and a battle between MSD and the city of Louisville raged over who was responsible for drainage in the area. MSD claimed that it was not responsible for drainage since

it only collected user fees for sanitary sewers but Louisville maintained that MSD was responsible for drainage under the city ordinance that turned over the city's combined sanitary and storm sewer system in 1946. The city of Louisville made an agreement with MSD in 1967 that gave it the responsibility for operating and maintaining the flood protection system using funds allocated by the city but funds were not forthcoming and few improvements were made. In 1978, a consultant hired by MSD recommended that the city should take responsibility for drainage improvements and in 1979 the city of Louisville went to court to require MSD to make all the necessary drainage improvements within the city.

In 1983 during a heavy rainstorm, a mechanical failure at a pump station near one of the city's largest outfalls into the Ohio River caused a flood in southwestern Louisville. The public blamed MSD for the failure and a public outcry against the management of MSD led to the resignation of the district's director. In 1984, MSD created a Strategic Planning and Finance Committee to study MSD's activities and challenges in light of the recent battles with the city of Louisville, problems with the city's new waste treatment plant, and the public outcry against MSD's management. The committee found \$232 million in needed drainage improvements and a survey of community members showed 60% favoring improved drainage facilities. The Strategic Planning and Finance Committee recommended that MSD should provide a countywide drainage program and the community asked the Kentucky legislature to create a countywide drainage district for Jefferson County. The measure failed by one vote so the community worked to find another solution.

## **Utility Creation**

The City of Louisville, MSD, and Jefferson County created a drainage utility through an interlocal agreement in 1986 and MSD assumed responsibility for the administration of the program. Since the Kentucky legislature had failed to pass legislation creating a drainage district, participation in the utility program was not mandatory and several cities (Anchorage, Jeffersontown, St. Matthews, Shively, and Prospect) opted out of the program. The drainage utility's first bills were sent out in January of 1987 following an extensive public education program but opposition remained and several lawsuits were filed challenging MSD's user fee structure. Major construction projects were again put on hold pending the outcome of the lawsuits. The Kentucky Court of Appeals ruled in favor of the drainage utility in 1989 and the utility's ambitious project to provide drainage services to Louisville and Jefferson County began.

## **Utility Objectives and Responsibilities**

The drainage utility of MSD began with a backlog of drainage projects that dated back almost fifty years. Some drainage problems waiting to be resolved had been problems for the community since Louisville's settlement in the 1800's. MSD expected the number of drainage requests in the service area to double or triple after the first drainage bills were sent out but the staff was overwhelmed by more than 18,000 new drainage service requests. During the first three years of the program, the drainage division averaged around 38 new drainage service calls per day. The drainage utility staff quickly set up a system to prioritize the incoming service requests and schedule necessary construction and repair projects in the community.

The drainage utility is also responsible for several environmental education and service programs to teach the community how to protect its water resources including river cleanups, teacher workshops, and hazardous materials collection programs. The utility initiated a greenways program to develop natural waterway banks and hired several biologists, a soils expert, and a landscape architect to address water quality issues. MSD recommended a flood plain ordinance to reduce potential flooding problems and extended the Ohio River floodwall system to provide more flood protection for the community. MSD is currently moving to a watershed approach and has begun to divide Jefferson County into eleven watersheds, inventory the problems in each area and target the most important problems in cooperation with the residents of each watershed and regulatory agencies.

## Utility Organization

The stormwater utility of Louisville-Jefferson County is part of the Metropolitan Sewer District (MSD) and shares staff with other MSD programs. MSD is also responsible for the sanitary sewer system and the flood protection system of the Louisville metropolitan area. MSD is a subdivision of the Commonwealth of Kentucky and its governing board is appointed by the chief executives of the City of Louisville and Jefferson County.

## Rate Structure

MSD's stormwater utility rate structure has two property classes. Single and two-family residential parcels are Class A parcels and all of the remaining developed parcels in the service area are Class B parcels. Class A customers are currently charged the rate for one equivalent service unit, or ESU. One ESU is equal to the average amount of impervious area on a single-family residential parcel, currently 2,500 ft<sup>2</sup>. Class B customers are charged based on the number of square feet of impervious area on their parcels, as measured by MSD aerial photography and other methods. The number of square feet of impervious area on a Class B parcel is divided by 2,500 to convert it into ESUs and then the number is rounded up to the nearest whole ESU. The charge for a Class B customer is found by multiplying the number of whole ESUs on the parcel by the monthly charge for one ESU, currently \$3.31 per month (See Table 1).

**Table 1: Louisville-Jefferson County, Kentucky Stormwater Utility Rate Structure**

Property Classification	Stormwater Service Charge
Class A (single and two-family residential)	\$3.31 per month (one ESU)
Class B (all other parcel types)	\$3.31 * number of whole ESUs on parcel

## Credits and Exemptions

The Louisville-Jefferson County stormwater utility fee structure has five types of exemptions. The utility provides exemptions for city-owned properties of those cities that are part of the interlocal agreement with MSD in cases where the city has provided property, equipment, or other assets to MSD that have a comparable value to the drainage service charges that would apply to those properties. The utility also provides exemptions for properties owned by the City of Louisville or Jefferson County that have dedicated stormwater facilities or made other types of

arrangements with MSD that offset the stormwater service charges applicable to the property. All MSD-owned property, public roads, and undeveloped parcels within the stormwater utility service area are also exempt from stormwater service charges.

Credits are available to Class B property owners who provide on-site stormwater retention or detention facilities that meet certain conditions. The property owner must bear the costs of operating and maintaining the on-site stormwater controls, construct the facilities using plans approved by MSD, obtain all required permits to operate the facilities, and give MSD access to the facilities for inspection purposes. The on-site control credits are calculated by reducing the number of ESU's the property owner is liable for by the percent reduction in stormwater runoff provided by the stormwater control facilities. For example, if a Class B customer installed on-site stormwater controls that decreased stormwater runoff from the property by 10%, the customer would receive a 10% reduction in the number of ESU's he was liable for. The maximum credit adjustment available for Class B stormwater customers is a stormwater charge reduction to 18% of the original charge.

## Utility Budget

MSD collected \$17,329,000 in stormwater utility fees in 1999. The majority of the fees were collected from MSD's commercial customers followed by the residential and industrial customers (See Table 2). MSD's stormwater utility fee revenue is supplemented by the sale of Sewer and Drainage System Revenue Bonds and other miscellaneous stormwater funds. In 1999, MSD completed \$213,382,000 in stormwater drainage facilities and had construction in progress on \$34,421,000 in additional facilities using the various sources of income available.

**Table 2: Breakdown of MSD's Stormwater Service Charge Revenue in 1999**

<b>Customer Type</b>	<b>Revenue from Service Charges (Thousands)</b>
Residential	\$6,973
Commercial	\$8,876
Industrial	\$1,480
<b>Total</b>	<b>\$17,329</b>

Taken from the MSD Comprehensive Annual Financial Report, 1999

MSD's largest stormwater expense is labor, requiring nearly 50% of the operating budget. The second-largest expense for the stormwater program is capital investment, followed by other operating expenses (See Table 3).

**Table 3: MSD Stormwater and Flood Program Expenses, 1997-1998**

<b>Budget Item</b>	<b>Portion of Operating Expenses</b>
Labor	\$6,649,000
Capital Investment	\$3,573,000
Other Operating Expenses	\$3,368,000
<b>Total</b>	<b>\$13,590,000</b>

Taken from MSD's 1997-1998 Annual Report

## **Public Information**

MSD has several ongoing public education programs. The MSD Web site's education page (<http://www.msdlouky.org/education.htm>) contains an overview of MSD's fifty years of service to the Louisville/Jefferson County community. The Web site also contains copies of MSD's three newsletters, Update, Stream-Line, and Cross Currents that are distributed to the public. MSD also sponsors environmental education in local school districts and MSD employees staff a booth at community events that provides residents with information on the operation of MSD.